

SECRET

(When Filled In)

Approved For Release 2002/08/06 : CIA-RDP78B04747A002400050002-9

R & D CATALOG FORM

24 February 1965

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|--|--|--|---------------------------------|
| 1. PROJECT TITLE/CODE NAME [] Air Bearing Film Processor | | 2. SHORT PROJECT DESCRIPTION A continuous processor that fully processes, washes and dries 70mm to 9 1/2" wide duplicate roll film. | |
| 5. CLASS OF CONTRACTOR Manufacturer | | 6. TYPE OF CONTRACT CPFF | |
| 7. FUNDS FY 19 \$ FY 1965 \$ FY 19 \$ | | 8. REQUISITION NO. N/A | 9. BUDGET PROJECT NO. NP-R-4 |
| | | 10. EFFECTIVE CONTRACT DATE (Begin - end) April 1965 - June 1966 | |
| 12. RESPONSIBLE DIRECTORATE/OFFICE/PROJECT OFFICER TELEPHONE EXTENSION DDI/NPIC/P&DS/[] | | | |
| 13. REQUIREMENT/AUTHORITY State-of-the-art advancement in roll film processing techniques to achieve the highest quality product possible. | | | |
| 14. TYPE OF WORK TO BE DONE Engineering Development | | | |
| 15. CATEGORIES OF EFFORT | | | |
| MAJOR CATEGORY Reproduction & Processing | | SUB-CATEGORIES Reproduction Processors | |
| 16. END ITEM OR SERVICES FROM THIS CONTRACT/IMPROVEMENT OVER CURRENT SYSTEM, EQUIPMENT, ETC. Design study (8 months) culminating in the construction of a prototype model (6 months). Operating instructions, monthly progress reports and a final development report. | | | |
| 17. SUPPORTING OR RELATED CONTRACTS (Agency & Other)/COORDINATION This effort represents a new company proprietary concept in film processing and does not duplicate any other effort within the Intelligence Community. Informal coordination with SAC has been performed through operational components. | | | |
| 18. DESCRIPTION OF INTELLIGENCE REQUIREMENT AND DETAILED TECHNICAL DESCRIPTION OF PROJECT (Continue on additional page if required) This effort represents a major advancement in compact, low-cost film processing equipment that consistently produces high quality results with a minimum of attention and maintenance. The [] design features a straight-line film path through small processing chambers in a compact machine with few moving parts. This principle has been tested and proven with a 16/35mm model. It is the purpose of this development program | | | |
| 19. APPROVED BY AND DATE OFFICE | | DEPUTY DIRECTOR DDCI Declass Review by NIMA/DOD | |

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R & D Catalog Form continued...

18. to study, design and build a prototype which will handle 70mm through 9 $\frac{1}{2}$ inch materials. Successful extension of the proven [] techniques into wide film processing will provide a reliable compact machine that will be suitable for use in both fixed installations and mobile laboratories. As compared with conventional wide-film processors of similar quality, this processor will be approximately one-fourth the cubage and one-fifth the weight, including support equipment.

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This development program will involve a design study, including breadboarding, culminating in a prototype model as an end deliverable item. Design study with the breadboard model will include both physical and sensitivity evaluation of negative and positive films to determine optimum conditions of transport speeds, chemistry, temperature, air flow, and solution flow for various film widths, thicknesses and base types. These parameters directly affect the size of the processing chambers and the selection of components. Significant areas of investigation will also include film threading, tracking and quality. Additionally, the effectiveness of heat-shock processing will be investigated for possible incorporation. The heat-shock technique has been proven to aid materially in producing high quality imagery under short access conditions along with a probable increase in film speed.

Water consumption on the 16/35mm models has been minimal. This efficient washing system will be extended to the wide film model and should result in processing with a fraction of the amount of water consumed by conventional wide-film processors. Selection and placement of pumps will be an important consideration, as the turbulence and flow-rates can affect processing rates and degrade image quality.

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The principal [] as proposed, literally floats the film on a fluid cushion, either liquid or air. The film makes no physical contact with any solid surface from the feed spool to the take-up spool. In addition, the film travels in a straight line (rather than serpentine over and under rollers as in deep tank processors), eliminating stress, flexing and tension that could distort the image. The air-locks between the liquid chambers will virtually eliminate liquid carry-over and act as an effective air-knife between the liquid and drying chambers.

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The prototype wide-film [] processor will consist of the following major components:

1. Load Station
2. Processing Station
3. Drier Station
4. Take-up Station

5. Film Transport Mechanism
6. Machine controls
7. Pumps, Blowers & Heaters as required
8. Provision for Plumbing, venting and electrical connections
9. Replenishment System
10. Overflow & drainage System

Design considerations will include, but not be limited to the following:

1. Compactness - overall length not to exceed 10 feet
2. Daylight and Darkroom Operation
3. Threading - manual versus Self-threading
4. Cleaning - ease
5. Path Length - not to exceed 8 feet
6. Film Transport - no excessive strain or flexing
7. Liquid Carryover - through processing chambers
8. Film Handling - no deleterious effect on film

Requirements established thus far for the prototype are as follows:

1. Film sizes - handle 70mm through $9\frac{1}{2}$ " wide film with base a thickness range of 0.002 to 0.007 inches.
2. Processing speed - optimum of 10 feet/minute variable from 0 to 15 feet/minute
3. Density - variation controlled to 0.05 with a design goal of 0.02
4. Film Length - accommodate 1000' rolls of standard base film
5. Temperature control - chemicals maintained within $\pm \frac{1}{2}^{\circ}$ F measured at the sensing probe. Variable from 68° to 160° F.
6. Water supply - constant temperature operation
7. Archival Quality - as specified in American Standards Specifications ASA PH 1.28 - 1957
8. Replenishment System - sufficient capacity to process at least 1000 feet of $9\frac{1}{2}$ " film.
9. Power - 115/208 Volt - 60 cycle operation
10. Materials - high quality, reliable, corrosion resistant throughout.

25X1 This effort will be sole source [redacted] because
25X1 it employs the [redacted] principal patented [redacted]
an affiliated organization, and is proprietary information.

25X1 Cost Information: [redacted] Based on DPFF contract, 14 month delivery
schedule)

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